XX
PS Claim 1; Page 11; 17pp; English.
XX
CC The present sequence is a consensus sequence that was constructed
CC from the highly conserved N-terminal region of fimbrial proteins from
CC CFA/I, CS1, CS2, CS4, CS17 and PCF 0166, and was shown to generate
CC antibodies against all members of the family. The consensus sequence
CC also contains both B and T cell epitopes. It can be used to immunise
CC against disease caused by enterotoxic E. coli of the family CS4-CFA/I.
CC Also antibodies raised against the E. coli CS4-CFA/I family can be
CC used as diagnostic reagents to identify antigens.
XX
SQ Sequence 36 AA;

Query Match 100.0%; Score 173; DB 18; Length 36;
Best Local Similarity 100.0%; Pred. No. 5.3e-18;
Matches 36; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 VEKNITVTASVDPTIDLLQADGSALPSAVALTYSPA 36
||||||||||||||||||||||||||||||||||
Db 1 VEKNITVTASVDPTIDLLQADGSALPSAVALTYSPA 36

RESULT 2
AAW53307
ID AAW53307 standard; peptide; 36 AA.
XX
AC AAW53307;
XX
DT 03-JUL-1998 (first entry)
XX
DE CS4-CFA/I family specific antibody responsive consensus peptide.
XX
KW Escherichia coli; CS4-CFA/I family; antibody; immunisation; ETEC;
KW enterotoxigenic; immune response.
XX
OS Synthetic.
OS Escherichia coli.
XX
PN WO9805348-A1.
XX
PD 12-FEB-1998.
XX
PF 01-AUG-1997; 97WO-US13476.
XX
PR 05-AUG-1996; 96US-0023145.
PR 02-AUG-1996; 96US-0023076.
XX
PA (USSA) US DEPT OF THE ARMY.
XX
PI Cassels F, Loomis-Price L;
XX
DR WPI; 1998-145348/13.
XX
PT Peptide(s) responsive to antibodies against Escherichia coli
PT CS4-CFA/I family proteins - are subunits of consensus peptide useful
PT for immunisation, and consequent antibody compositions, useful in
PT assays and treatment of infection
XX
PS Example 2; Page 6; 19pp; English.
XX
CC The present sequence represents a peptide responsive to antibodies
CC against Escherichia coli CS4-CFA/I family proteins. The peptide and
CC compositions containing such peptides are useful for immunisation to
CC raise antibodies to organisms producing the CS4-CFA/I family of
CC proteins. The CS4-CFA/I family belong to the enterotoxigenic (ETEC)
CC class of Escherichia coli, one of five classes of E. coli causing
CC diarrhoea. ETEC are the most common class and cause high infant
CC mortality and illness in adult travellers in developing countries. The
CC peptides are also useful to determine whether individual animals have
CC antibodies to ETEC E. coli. The antibody compositions can be used in
CC assays to detect organisms bearing the CS4-CFA/I family proteins, in
CC which a culture of organisms is contacted with the composition for
CC sufficient time for interaction to occur, and the culture is examined
CC to determine if a CS4-CFA/I family protein/antibody complex has formed.
CC The antibody compositions can also be used to treat, or immunise a
CC susceptible host against, illness arising from infection with bacteria
CC bearing CS4-CFA/I family proteins, by administering a bacteria-
CC agglutinating effective amount, optionally with an adjuvant.
XX
SQ Sequence 36 AA;

Query Match 100.0%; Score 173; DB 19; Length 36;
Best Local Similarity 100.0%; Pred. No. 5.3e-18;
Matches 36; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 VEKNITVTASVDPTIDLLQADGSALPSAVALTYSPA 36
||||||||||||||||||||||||||||||||||
Db 1 VEKNITVTASVDPTIDLLQADGSALPSAVALTYSPA 36

RESULT 3
AAW09420
ID AAW09420 standard; peptide; 37 AA.
XX
AC AAW09420;
XX
DT 25-JUL-1997 (first entry)
XX
DE Immunogenic peptide against E.coli CS4-CFA/1.
XX
KW Immunisation; fimbrial protein; colonisation factor antigen;
KW antibody.
XX
OS Escherichia coli.
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Disulfide-bond 1
FT /note= "The cysteine residue was added to the
FT consensus peptide to allow bonding with
FT iodoacetylated albumin or toxoid, providing
FT conjugated proteins"
FT Peptide 2..37
FT /label= Consensus_sequence
XX
PN WO9638171-A1.
XX
PD 05-DEC-1996.
XX
PF 03-JUN-1996; 96WO-US08730.
XX
PR 02-JUN-1995; 95US-0460617.
XX
PA (USSA) US DEPT OF THE ARMY.
XX
PI Anderson J, Carter JM, Cassels F;
XX
DR WPI; 1997-034101/03.
XX
PT New consensus peptide from fimbrial proteins of the E. coli family
PT CS4-CFA/I - and denatured fimbrial proteins, used for immunisation
PT against infection by bacteria of this family
XX
PS Claim 2; Page 11; 17pp; English.
XX
CC A consensus sequence was constructed from the highly conserved
CC N-terminal region of fimbrial proteins from CFA/I, CS1, CS2, CS4,
CC CS17 and PCF 0166, and was shown to generate antibodies against
CC all members of the family. The consensus sequence also contains
CC both B and T cell epitopes. The present sequence represents the
CC consensus sequence with a cysteine residue at the N-terminus of
CC the peptide to allow conjugated peptides to be produced. This allows
CC greater increases in antigenicity when used to immunise against
CC disease caused by enterotoxic E. coli of the family CS4-CFA/I.
CC Also antibodies raised against the E. coli CS4-CFA/I family can be

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: January 3, 2003, 13:01:31 ; Search time 49.3043 Seconds
(without alignments)
97.294 Million cell updates/sec

Title: US-09-801-784A-1
Perfect score: 173
Sequence: 1 VEKNITVTASVDPTIDLLQADGSALPSAVALTYSPA 36

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 908470 seqs, 133250620 residues

Total number of hits satisfying chosen parameters: 908470

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

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23: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2002.DAT:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	173	100.0	36	18	AAW17903	Immunogenic consen
2	173	100.0	36	19	AAW53307	CS4-CFA/I family s
3	173	100.0	37	18	AAW09420	Immunogenic peptid
4	173	100.0	37	19	AAW48316	Escherichia coli f
5	173	100.0	38	21	AAB06210	Escherichia coli c
6	168	97.1	37	18	AAW24221	Peptide fragment f
7	167	96.5	36	18	AAW17904	Immunogenic consen
8	160	92.5	167	23	AAM50340	ETEC CS4 pilus Csa
9	157	90.8	37	18	AAW24223	Peptide fragment f
10	157	90.8	37	18	AAW17907	Peptide CS4 from d
11	157	90.8	117	18	AAW17913	Peptide CS4 from d
12	155	89.6	37	18	AAW17905	Peptide CFA/I from
13	155	89.6	147	18	AAW17911	Peptide CFA/I from
14	155	89.6	170	19	AAW38341	E. coli colonisati
15	153	88.4	37	18	AAW24222	Peptide fragment f
16	153	88.4	37	18	AAW17906	Peptide CS1 from d
17	153	88.4	148	18	AAW17912	Peptide CS1 from d
18	153	88.4	171	13	AAR21313	Sequence of a majo
19	147	85.0	51	18	AAW17915	Peptide PCF0166 fr
20	138	79.8	40	18	AAW17916	Peptide CS2 from d
21	138	79.8	170	20	AAY22324	Pilin protein CofA
22	136	78.6	36	18	AAW17908	Peptide CS17 from
23	136	78.6	40	18	AAW17914	Peptide CS17 from
24	130	75.1	36	18	AAW24224	Peptide fragment f
25	113	65.3	191	22	AAB45917	S. enterica serova
26	112	64.7	25	18	AAW24225	Peptide fragment f
27	112	64.7	25	18	AAW17909	Peptide PCF0166 fr
28	86	49.7	20	18	AAW17910	Peptide CS2 from d
29	78	45.1	20	18	AAW24226	Peptide fragment f
30	77	44.5	16	19	AAW53302	CS4-CFA/I family s
31	72	41.6	15	19	AAW53304	CS4-CFA/I family s
32	68	39.3	14	19	AAW53305	CS4-CFA/I family s
33	62	35.8	13	19	AAW53306	CS4-CFA/I family s
34	57	32.9	12	19	AAW53303	CS4-CFA/I family s
35	56.5	32.7	314	22	ABG30280	Novel human diagno
36	56.5	32.7	580	11	AAR07448	Glutamyl transpept
37	56.5	32.7	580	15	AAR62024	Mutant gamma-gluta
38	56	32.4	13	17	AAR95170	Influenza colonisa
39	54	31.2	517	23	AAE17563	Human pancreatic t
40	54	31.2	520	23	AAE17561	Human pancreatic t
41	54	31.2	521	21	AAB42819	Human ORFX ORF2583
42	52	30.1	118	22	ABB70113	Drosophila melanog
43	52	30.1	740	22	AAU34783	E. coli cellular p
44	51.5	29.8	1560	10	AAP94145	S. cremoris protei
45	51.5	29.8	2042	19	AAW56319	Haemophilus paraga

ALIGNMENTS

RESULT 1
AAW17903
ID AAW17903 standard; peptide; 36 AA.
XX
AC AAW17903;
XX
DT 25-JUL-1997 (first entry)
XX
DE Immunogenic consensus peptide against E.coli CS4-CFA/1.
XX
KW Immunisation; fimbrial protein; colonisation factor antigen;
KW antibody.
XX
OS Escherichia coli.
OS Synthetic.
XX
PN WO9638171-A1.
XX
PD 05-DEC-1996.
XX
PF 03-JUN-1996; 96WO-US08730.
XX
PR 02-JUN-1995; 95US-0460617.
XX
PA (USSA) US DEPT OF THE ARMY.
XX
PI Anderson J, Carter JM, Cassels F;
XX
DR WPI; 1997-034101/03.
XX
PT New consensus peptide from fimbrial proteins of the E. coli family
PT CS4-CFA/I - and denatured fimbrial proteins, used for immunisation
PT against infection by bacteria of this family

```
CC   used as diagnostic reagents to identify antigens.
XX
SQ   Sequence   37 AA;

  Query Match            100.0%;  Score 173;  DB 18;  Length 37;
  Best Local Similarity  100.0%;  Pred. No. 5.4e-18;
  Matches   36;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 VEKNITVTASVDPTIDLLQADGSALPSAVALTYSPA 36
          ||||||||||||||||||||||||||||||||||||
Db      2 VEKNITVTASVDPTIDLLQADGSALPSAVALTYSPA 37


RESULT 4
AAW48316
ID   AAW48316 standard; peptide; 37 AA.
XX
AC   AAW48316;
XX
DT   02-JUL-1998  (first entry)
XX
DE   Escherichia coli family CS4-CFA/I immunogen consensus peptide.
XX
KW   Monoclonal antibody; agglutinate; Escherichia coli; prophylaxis;
KW   CS4-CFA/I family protein; diarrhoea.
XX
OS   Synthetic.
OS   Escherichia coli.
XX
PN   WO9805687-A1.
XX
PD   12-FEB-1998.
XX
PF   01-AUG-1997;   97WO-US13477.
XX
PR   02-AUG-1996;   96US-0023075.
XX
PA   (USSA ) US DEPT OF THE ARMY.
PA   (VIRI-) VIRION SYSTEMS INC.
XX
PI   Cassels F,  Lees A,  Schuman R;
XX
DR   WPI; 1998-145553/13.
XX
PT   Monoclonal antibody agglutinating Escherichia coli with CS4-CFA/I
PT   family protein - is useful in assays and for treatment or
PT   prophylaxis against illness arising from infection with E. coli
PT   bearing CS4-CFA/I family proteins
XX
PS   Disclosure; Page 3; 14pp; English.
XX
CC   The present sequence represents an Escherichia coli family CS4-CFA/I
CC   immunogen consensus peptide. The present invention describes a new
CC   monoclonal antibody which binds exclusively and specifically to SAVALTYS,
CC   agglutinates bacteria bearing CS4-CFA/I family proteins and is produced
CC   by hybridoma 96-109FE8 IH11. The monoclonal antibody can agglutinate
CC   members of the Escherichia coli family CSA-CFA/I, since it was raised to
CC   a consensus peptide known to raise antibodies against proteins of all
CC   the CSA-CFA/I family. E. coli causing diarrhoea are grouped into five
CC   classes, of which enterotoxigenic (ETEC), to which the CS4-CFA/I family
CC   belong, are the most common and pose the greatest risk to travellers.
CC   ETEC E. coli cause high infant mortality and illness in adult travellers
CC   in developing countries. The antibody is useful in assays to detect/
CC   identify organisms bearing CS4-CFA family proteins, by contacting
CC   cultures of organisms for sufficient time for interaction, and
CC   determining whether a CS4-CFA/I family protein/antibody complex has
CC   formed. It can be included in compositions with a carrier appropriate
CC   for application to bacteria-containing growth media, optionally with a
CC   tag e.g. a fluorescing agent or colorometric tag, to assist
CC   identification of the complex. It can also be included in compositions
CC   with pharmaceutically acceptable carriers, especially saline, useful for
CC   treating or prophylaxing against illness arising from infection with
CC   bacteria bearing CS4-CFA/I family proteins.
XX
SQ   Sequence   37 AA;

  Query Match            100.0%;  Score 173;  DB 19;  Length 37;
  Best Local Similarity  100.0%;  Pred. No. 5.4e-18;
  Matches   36;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 VEKNITVTASVDPTIDLLQADGSALPSAVALTYSPA 36
          ||||||||||||||||||||||||||||||||||||
Db      2 VEKNITVTASVDPTIDLLQADGSALPSAVALTYSPA 37


RESULT 5
AAB06210
ID   AAB06210 standard; peptide; 38 AA.
XX
AC   AAB06210;
XX
DT   22-NOV-2000  (first entry)
XX
DE   Escherichia coli consensus peptide.
XX
KW   E. coli; solid phase conjugate vaccines; bacterial infection;
KW   viral infection; parasitic infection; fungal infection; rickettsiae.
XX
OS   Escherichia coli.
XX
PN   WO200025812-A2.
XX
PD   11-MAY-2000.
XX
PF   29-OCT-1999;   99WO-US25425.
XX
PR   29-OCT-1998;   98US-0106090.
XX
PA   (LEES/) LEES A.
XX
PI   Lees A;
XX
DR   WPI; 2000-365401/31.
XX
PT   Preparation of solid phase vaccine for treating viral, bacterial,
PT   rickettsiae, and fungal diseases, involves adsorbing protein to solid
PT   phase adjuvant and covalently linking carbohydrate to adsorbed protein
PT   -
XX
PS   Example 10; Page 25; 40pp; English.
XX
CC   The present sequence is a consensus peptide sequence from Escherichia
CC   coli. It was used in the production of solid phase conjugate vaccines,
CC   which can be used to treat and produce antibodies against bacterial,
CC   viral, parasitic or fungal infections.
XX
SQ   Sequence   38 AA;

  Query Match            100.0%;  Score 173;  DB 21;  Length 38;
  Best Local Similarity  100.0%;  Pred. No. 5.6e-18;
  Matches   36;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 VEKNITVTASVDPTIDLLQADGSALPSAVALTYSPA 36
          ||||||||||||||||||||||||||||||||||||
Db      2 VEKNITVTASVDPTIDLLQADGSALPSAVALTYSPA 37


RESULT 6
AAW24221
ID   AAW24221 standard; peptide; 37 AA.
XX
AC   AAW24221;
XX
DT   17-MAR-1998  (first entry)
XX
DE   Peptide fragment from Escherichia coli CFA/1.
```

XX
KW T-lymphocyte epitope; diagnosis; antigen; infectious disease;
KW delayed-type hypersensitivity assay; vaccine development.
XX
OS Escherichia coli.
XX
PN WO9727462-A2.
XX
PD 31-JUL-1997.
XX
PF 27-JAN-1997; 97WO-US01084.
XX
PR 26-JAN-1996; 96US-0010679.
XX
PA (USSA) US DEPT ARMY GOVERNMENT US ARMY MEDICAL.
XX
PI Brix DL, Sitz KV;
XX
DR WPI; 1997-393814/36.
XX
PT Peptide fragments containing antigen epitope(s) used to trace
PT diseases - used in a delayed-type hypersensitivity assay, for in
PT vivo mapping of human T-lymphocyte epitope(s) e.g. for diagnosis,
PT vaccine development etc
XX
PS Disclosure; Page 10; 14pp; English.
XX
CC Peptides AAW24221-6 from Escherichia coli may be used in the method
CC of the invention which relates to the tracing of sources of infectious
CC diseases. The method comprises preparing a short (9-50 amino acid)
CC peptide containing at least one non-conserved epitope of an organism,
CC injecting a composition containing the peptide intradermally into a test
CC subject in a delayed-type hypersensitivity (DTH) assay and observing the
CC injection site at intervals for induration. The method allows the
CC T-lymphocyte epitopes of a large antigen to be determined in vivo in
CC humans. The method is useful in medicine e.g. in diagnosis, monitoring
CC and treatment design for infectious disease exposure, active autoimmune
CC disease, allergic diseases and malignancy. It is especially useful for
CC tracing infectious diseases e.g HIV, particularly when a sequence is
CC present only in certain strains of an organism, and developing suitable
CC vaccines. Vaccinated individuals can also be tested to verify protection
CC against a particular strain. The method allows in vivo mapping of
CC T-lymphocyte epitopes, not previously possible. The method is simpler,
CC more rapid and more sensitive. It can also be applied in a variety of
CC environments e.g. undeveloped regions since specialist equipment is not
CC required.
XX
SQ Sequence 37 AA;

Query Match 97.1%; Score 168; DB 18; Length 37;
Best Local Similarity 97.2%; Pred. No. 2.9e-17;
Matches 35; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 VEKNITVTASVDPTIDLLQADGSALPSAVALTYSPA 36
||||||||||||| |||||||||||||||||||||
Db 1 VEKNITVTASVDPVIDLLQADGSALPSAVALTYSPA 36

RESULT 7
AAW17904
ID AAW17904 standard; peptide; 36 AA.
XX
AC AAW17904;
XX
DT 25-JUL-1997 (first entry)
XX
DE Immunogenic consensus peptide 2 against E.coli CS4-CFA/1.
XX
KW Immunisation; fimbrial protein; colonisation factor antigen;
KW antibody.
XX
OS Escherichia coli.
OS Synthetic.
XX
PN WO9638171-A1.
XX
PD 05-DEC-1996.
XX
PF 03-JUN-1996; 96WO-US08730.
XX
PR 02-JUN-1995; 95US-0460617.
XX
PA (USSA) US DEPT OF THE ARMY.
XX
PI Anderson J, Carter JM, Cassels F;
XX
DR WPI; 1997-034101/03.
XX
PT New consensus peptide from fimbrial proteins of the E. coli family
PT CS4-CFA/I - and denatured fimbrial proteins, used for immunisation
PT against infection by bacteria of this family
XX
PS Disclosure; Page 3; 17pp; English.
XX
CC The present sequence is consensus peptide 2 sequence that was constructed
CC from the highly conserved N-terminal region of fimbrial proteins from
CC CFA/I, CS1, CS2, CS4, CS17 and PCF 0166, and was shown to generate
CC antibodies against all members of the family. The consensus sequence
CC also contains both B and T cell epitopes. It can be used to immunise
CC against disease caused by enterotoxic E. coli of the family CS4-CFA/I.
CC Also antibodies raised against the E. coli CS4-CFA/I family can be
CC used as diagnostic reagents to identify antigens.
XX
SQ Sequence 36 AA;

Query Match 96.5%; Score 167; DB 18; Length 36;
Best Local Similarity 94.4%; Pred. No. 3.9e-17;
Matches 34; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

Qy 1 VEKNITVTASVDPTIDLLQADGSALPSAVALTYSPA 36
|||||||||||||||||||||||::||||||||
Db 1 VEKNITVTASVDPTIDLLQADGSALPASVALTYSPA 36

RESULT 8
AAM50340
ID AAM50340 standard; Protein; 167 AA.
XX
AC AAM50340;
XX
DT 18-FEB-2002 (first entry)
XX
DE ETEC CS4 pilus CsaB fimbrial structural protein.
XX
KW CS4 pilus; enterotoxigenic; ETEC; csa operon; CsaB; fimbrial;
KW vaccine; diarrhoea; antibacterial; antidiarrheic.
XX
OS Escherichia coli.
XX
FH Key Location/Qualifiers
FT Peptide 1..23
FT /label= Signal_peptide
FT Protein 24..167
FT /label= Mature_protein
XX
PN WO200181582-A2.
XX
PD 01-NOV-2001.
XX
PF 20-APR-2001; 2001WO-US12914.
XX
PR 20-APR-2000; 2000US-198686P.
XX
PA (UYMA-) UNIV MARYLAND BALTIMORE.
XX
PI Altboum Z, Levine MM, Barry EM;

XX
DR WPI; 2002-049280/06.
DR N-PSDB; AAI70760, AAI70780.
XX
PT New nucleotide sequence, useful as immunogenic agent for generating
PT immune response against recombinant product of the operon, comprises
PT csa operon which encodes enterotoxigenic Escherichia coli-CS4 pili -
XX
PS Claim 4; Page 50; 81pp; English.
XX
CC The present sequence is that of fimbrial structural protein CsaB
CC of enterotoxigenic Escherichia coli (ETEC) strain E11881A. CsaB is
CC encoded by the csaB gene (see AAI70760) of the E. coli E11881A csa
CC operon. This operon has 5 contiguous genes, csaA-csaE, which encode
CC the synthesis of ETEC-CS4 pili. It has been expressed in attenuated
CC Shigella strain CVD1204 guaBA, constructing the Shigella expressing
CC CS4 fimbriae vaccine strain CVD1204 (pGA2-CS4). The CsaB protein
CC has a calculated mol.wt. of 17343.9 and a theoretical pI of 6.56.
CC It shares homology with other ETEC fimbriae proteins. Recombinant
CC CsaA-CsaE polypeptides are used in claimed immunogenic compositions
CC to generate an immune response in a subject. These prevent ETEC
CC colonisation, and hence protect against diarrhoea.
XX
SQ Sequence 167 AA;

Query Match 92.5%; Score 160; DB 23; Length 167;
Best Local Similarity 88.9%; Pred. No. 2.8e-15;
Matches 32; Conservative 3; Mismatches 1; Indels 0; Gaps 0;

Qy 1 VEKNITVTASVDPTIDLLQADGSALPSAVALTYSPA 36
||||||||||||||||:||||||:||:|| ||||||
Db 24 VEKNITVTASVDPTIDILQADGSSLPTAVELTYSPA 59

RESULT 9
AAW24223
ID AAW24223 standard; peptide; 37 AA.
XX
AC AAW24223;
XX
DT 17-MAR-1998 (first entry)
XX
DE Peptide fragment from Escherichia coli CS4.
XX
KW T-lymphocyte epitope; diagnosis; antigen; infectious disease;
KW delayed-type hypersensitivity assay; vaccine development.
XX
OS Escherichia coli.
XX
PN WO9727462-A2.
XX
PD 31-JUL-1997.
XX
PF 27-JAN-1997; 97WO-US01084.
XX
PR 26-JAN-1996; 96US-0010679.
XX
PA (USSA) US DEPT ARMY GOVERNMENT US ARMY MEDICAL.
XX
PI Brix DL, Sitz KV;
XX
DR WPI; 1997-393814/36.
XX
PT Peptide fragments containing antigen epitope(s) used to trace
PT diseases - used in a delayed-type hypersensitivity assay, for in
PT vivo mapping of human T-lymphocyte epitope(s) e.g. for diagnosis,
PT vaccine development etc
XX
PS Disclosure; Page 10; 14pp; English.
XX
CC Peptides AAW24221-6 from Escherichia coli may be used in the method
CC of the invention which relates to the tracing of sources of infectious
CC diseases. The method comprises preparing a short (9-50 amino acid)
CC peptide containing at least one non-conserved epitope of an organism,
CC injecting a composition containing the peptide intradermally into a test
CC subject in a delayed-type hypersensitivity (DTH) assay and observing the
CC injection site at intervals for induration. The method allows the
CC T-lymphocyte epitopes of a large antigen to be determined in vivo in
CC humans. The method is useful in medicine e.g. in diagnosis, monitoring
CC and treatment design for infectious disease exposure, active autoimmune
CC disease, allergic diseases and malignancy. It is especially useful for
CC tracing infectious diseases e.g HIV, particularly when a sequence is
CC present only in certain strains of an organism, and developing suitable
CC vaccines. Vaccinated individuals can also be tested to verify protection
CC against a particular strain. The method allows in vivo mapping of
CC T-lymphocyte epitopes, not previously possible. The method is simpler,
CC more rapid and more sensitive. It can also be applied in a variety of
CC environments e.g. undeveloped regions since specialist equipment is not
CC required.
XX
SQ Sequence 37 AA;

Query Match 90.8%; Score 157; DB 18; Length 37;
Best Local Similarity 88.9%; Pred. No. 1.2e-15;
Matches 32; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

Qy 1 VEKNITVTASVDPTIDLLQADGSALPSAVALTYSPA 36
||||||||||||||||:||||||:||:|| ||||||
Db 1 VEKNITVTASVDPTIDILQADGSYLPTAVELTYSPA 36

RESULT 10
AAW17907
ID AAW17907 standard; peptide; 37 AA.
XX
AC AAW17907;
XX
DT 25-JUL-1997 (first entry)
XX
DE Peptide CS4 from denatured protein subunits of E.coli fimbriae.
XX
KW Immunisation; fimbrial protein; colonisation factor antigen;
KW antibody.
XX
OS Escherichia coli.
OS Synthetic.
XX
PN WO9638171-A1.
XX
PD 05-DEC-1996.
XX
PF 03-JUN-1996; 96WO-US08730.
XX
PR 02-JUN-1995; 95US-0460617.
XX
PA (USSA) US DEPT OF THE ARMY.
XX
PI Anderson J, Carter JM, Cassels F;
XX
DR WPI; 1997-034101/03.
XX
PT New consensus peptide from fimbrial proteins of the E. coli family
PT CS4-CFA/I - and denatured fimbrial proteins, used for immunisation
PT against infection by bacteria of this family
XX
PS Disclosure; Page 4; 17pp; English.
XX
CC The present sequence is a peptide from the denatured protein subunit
CC of fimbriae from CS4. Many of the denatured proteins give rise to
CC antibodies that are reactive with proteins of other strains as shown
CC by precipitation studies on nitrocellulose. They are also reactive
CC with surface antigens of the fimbriae as shown by agglutination
CC of organisms. They can be used to immunise against disease caused by
CC enterotoxic E. coli of the family CS4-CFA/I. Also antibodies raised
CC against the E. coli CS4-CFA/I family can be used as diagnostic reagents
CC to identify antigens.

```
XX
SQ   Sequence   37 AA;

  Query Match             90.8%;  Score 157;  DB 18;  Length 37;
  Best Local Similarity   88.9%;  Pred. No. 1.2e-15;
  Matches   32;  Conservative    2;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 VEKNITVTASVDPTIDLLQADGSALPSAVALTYSPA 36
           |||||| |||||||||:|||||| ||:|| ||||||
Db       1 VEKNITVTASVDPTIDILQADGSYLPTAVELTYSPA 36


RESULT 11
AAW17913
ID   AAW17913 standard; peptide; 117 AA.
XX
AC   AAW17913;
XX
DT   25-JUL-1997  (first entry)
XX
DE   Peptide CS4 from denatured protein subunits of E.coli fimbriae.
XX
KW   Immunisation; fimbrial protein; colonisation factor antigen;
KW   antibody.
XX
OS   Escherichia coli.
OS   Synthetic.
XX
PN   WO9638171-A1.
XX
PD   05-DEC-1996.
XX
PF   03-JUN-1996;   96WO-US08730.
XX
PR   02-JUN-1995;   95US-0460617.
XX
PA   (USSA ) US DEPT OF THE ARMY.
XX
PI   Anderson J,  Carter JM,  Cassels F;
XX
DR   WPI; 1997-034101/03.
XX
PT   New consensus peptide from fimbrial proteins of the E. coli family
PT   CS4-CFA/I - and denatured fimbrial proteins, used for immunisation
PT   against infection by bacteria of this family
XX
PS   Disclosure; Page 4; 17pp; English.
XX
CC   The present sequence is a peptide from the denatured protein subunit
CC   of fimbriae from CS4. Many of the denatured proteins give rise to
CC   antibodies that are reactive with proteins of other strains as shown
CC   by precipitation studies on nitrocellulose. They are also reactive
CC   with surface antigens of the fimbriae as shown by agglutination
CC   of organisms. They can be used to immunise against disease caused by
CC   enterotoxic E. coli of the family CS4-CFA/I. Also antibodies raised
CC   against the E. coli CS4-CFA/I family can be used as diagnostic reagents
CC   to identify antigens.
XX
SQ   Sequence   117 AA;

  Query Match             90.8%;  Score 157;  DB 18;  Length 117;
  Best Local Similarity   88.9%;  Pred. No. 4.9e-15;
  Matches   32;  Conservative    2;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 VEKNITVTASVDPTIDLLQADGSALPSAVALTYSPA 36
           |||||||||||||||:|||||| ||:|| ||||||
Db       1 VEKNITVTASVDPTIDILQADGSYLPTAVELTYSPA 36


RESULT 12
AAW17905
ID   AAW17905 standard; peptide; 37 AA.
XX
AC   AAW17905;
XX
DT   25-JUL-1997  (first entry)
XX
DE   Peptide CFA/I from denatured protein subunits of E.coli fimbriae.
XX
KW   Immunisation; fimbrial protein; colonisation factor antigen;
KW   antibody.
XX
OS   Escherichia coli.
OS   Synthetic.
XX
PN   WO9638171-A1.
XX
PD   05-DEC-1996.
XX
PF   03-JUN-1996;   96WO-US08730.
XX
PR   02-JUN-1995;   95US-0460617.
XX
PA   (USSA ) US DEPT OF THE ARMY.
XX
PI   Anderson J,  Carter JM,  Cassels F;
XX
DR   WPI; 1997-034101/03.
XX
PT   New consensus peptide from fimbrial proteins of the E. coli family
PT   CS4-CFA/I - and denatured fimbrial proteins, used for immunisation
PT   against infection by bacteria of this family
XX
PS   Disclosure; Page 4; 17pp; English.
XX
CC   The present sequence is a peptide from the denatured protein subunit
CC   of fimbriae from CFA/I. Many of the denatured proteins give rise to
CC   antibodies that are reactive with proteins of other strains as shown
CC   by precipitation studies on nitrocellulose. They are also reactive
CC   with surface antigens of the fimbriae as shown by agglutination
CC   of organisms. They can be used to immunise against disease caused by
CC   enterotoxic E. coli of the family CS4-CFA/I. Also antibodies raised
CC   against the E. coli CS4-CFA/I family can be used as diagnostic reagents
CC   to identify antigens.
XX
SQ   Sequence   37 AA;

  Query Match             89.6%;  Score 155;  DB 18;  Length 37;
  Best Local Similarity   88.9%;  Pred. No. 2.3e-15;
  Matches   32;  Conservative    1;  Mismatches    3;  Indels    0;  Gaps    0;

Qy       1 VEKNITVTASVDPTIDLLQADGSALPSAVALTYSPA 36
           |||||||||||||| |||||||:|||||| | ||||
Db       1 VEKNITVTASVDPVIDLLQADGNALPSAVKLAYSPA 36


RESULT 13
AAW17911
ID   AAW17911 standard; peptide; 147 AA.
XX
AC   AAW17911;
XX
DT   25-JUL-1997  (first entry)
XX
DE   Peptide CFA/I from denatured protein subunits of E.coli fimbriae.
XX
KW   Immunisation; fimbrial protein; colonisation factor antigen;
KW   antibody.
XX
OS   Escherichia coli.
OS   Synthetic.
XX
PN   WO9638171-A1.
XX
PD   05-DEC-1996.
XX
```

PF 03-JUN-1996; 96WO-US08730.
XX
PR 02-JUN-1995; 95US-0460617.
XX
PA (USSA) US DEPT OF THE ARMY.
XX
PI Anderson J, Carter JM, Cassels F;
XX
DR WPI; 1997-034101/03.
XX
PT New consensus peptide from fimbrial proteins of the E. coli family
PT CS4-CFA/I - and denatured fimbrial proteins, used for immunisation
PT against infection by bacteria of this family
XX
PS Disclosure; Page 4; 17pp; English.
XX
CC The present sequence is a peptide from the denatured protein subunit
CC of fimbriae from CFA/I. Many of the denatured proteins give rise to
CC antibodies that are reactive with proteins of other strains as shown
CC by precipitation studies on nitrocellulose. They are also reactive
CC with surface antigens of the fimbriae as shown by agglutination
CC of organisms. They can be used to immunise against disease caused by
CC enterotoxic E. coli of the family CS4-CFA/I. Also antibodies raised
CC against the E. coli CS4-CFA/I family can be used as diagnostic reagents
CC to identify antigens.
XX
SQ Sequence 147 AA;

Query Match 89.6%; Score 155; DB 18; Length 147;
Best Local Similarity 88.9%; Pred. No. 1.3e-14;
Matches 32; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

Qy 1 VEKNITVTASVDPTIDLLQADGSALPSAVALTYSPA 36
||||||||||||| |||||||:|||||| | ||||
Db 1 VEKNITVTASVDPVIDLLQADGNALPSAVKLAYSPA 36

RESULT 14
AAW38341
ID AAW38341 standard; Protein; 170 AA.
XX
AC AAW38341;
XX
DT 27-MAR-1998 (first entry)
XX
DE E. coli colonisation factor antigen CFA1.
XX
KW Bacterial colonisation; colonisation factor antigen; CFA1;
KW enterotoxic Escherichia coli; vaccine; diagnosis; research.
XX
OS Escherichia coli.
XX
PN US5698416-A.
XX
PD 16-DEC-1997.
XX
PF 02-JUN-1995; 95US-0460739.
XX
PR 02-JUN-1995; 95US-0460739.
XX
PA (USSA) US SEC OF ARMY.
XX
PI Bell BA, Cassels FJ, Wolf MK;
XX
DR WPI; 1998-051486/05.
DR N-PSDB; AAT96059.
XX
PT Production of bacterial colonisation factor protein - by expression
PT under control of heat-inducible promoter
XX
PS Example 2; Columns 15-18; 11pp; English.
XX
CC Production of a protein that affects bacterial colonisation,
CC comprises inoculating a broth containing tryptone and yeast extract
CC with enteric bacteria containing a DNA sequence encoding the
CC protein under the control of a temperature regulated promoter,
CC culturing the bacteria, removing the bacteria from the medium and
CC recovering the protein. The method is used especially for producing
CC the colonisation factor antigen CFA1 of enterotoxic E. coli, i.e.
CC the antigen denoted by the present sequence, which may be used in
CC vaccines or for diagnostic or research purposes. Growing the
CC bacteria at low temperature until the late logarithmic phase
CC increases the yield of the protein.
XX
SQ Sequence 170 AA;

Query Match 89.6%; Score 155; DB 19; Length 170;
Best Local Similarity 88.9%; Pred. No. 1.5e-14;
Matches 32; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

Qy 1 VEKNITVTASVDPTIDLLQADGSALPSAVALTYSPA 36
||||||||||||| |||||||:|||||| | ||||
Db 24 VEKNITVTASVDPVIDLLQADGNALPSAVKLAYSPA 59

RESULT 15
AAW24222
ID AAW24222 standard; peptide; 37 AA.
XX
AC AAW24222;
XX
DT 17-MAR-1998 (first entry)
XX
DE Peptide fragment from Escherichia coli CS1.
XX
KW T-lymphocyte epitope; diagnosis; antigen; infectious disease;
KW delayed-type hypersensitivity assay; vaccine development.
XX
OS Escherichia coli.
XX
PN WO9727462-A2.
XX
PD 31-JUL-1997.
XX
PF 27-JAN-1997; 97WO-US01084.
XX
PR 26-JAN-1996; 96US-0010679.
XX
PA (USSA) US DEPT ARMY GOVERNMENT US ARMY MEDICAL.
XX
PI Brix DL, Sitz KV;
XX
DR WPI; 1997-393814/36.
XX
PT Peptide fragments containing antigen epitope(s) used to trace
PT diseases - used in a delayed-type hypersensitivity assay, for in
PT vivo mapping of human T-lymphocyte epitope(s) e.g. for diagnosis,
PT vaccine development etc
XX
PS Disclosure; Page 10; 14pp; English.
XX
CC Peptides AAW24221-6 from Escherichia coli may be used in the method
CC of the invention which relates to the tracing of sources of infectious
CC diseases. The method comprises preparing a short (9-50 amino acid)
CC peptide containing at least one non-conserved epitope of an organism,
CC injecting a composition containing the peptide intradermally into a test
CC subject in a delayed-type hypersensitivity (DTH) assay and observing the
CC injection site at intervals for induration. The method allows the
CC T-lymphocyte epitopes of a large antigen to be determined in vivo in
CC humans. The method is useful in medicine e.g. in diagnosis, monitoring
CC and treatment design for infectious disease exposure, active autoimmune
CC disease, allergic diseases and malignancy. It is especially useful for
CC tracing infectious diseases e.g HIV, particularly when a sequence is
CC present only in certain strains of an organism, and developing suitable
CC vaccines. Vaccinated individuals can also be tested to verify protection
CC against a particular strain. The method allows in vivo mapping of

```
CC   T lymphocyte epitopes, not previously possible. The method is simpler,
CC   more rapid and more sensitive. It can also be applied in a variety of
CC   environments e.g. undeveloped regions since specialist equipment is not
CC   required.
XX
SQ   Sequence   37 AA;

  Query Match             88.4%;  Score 153;  DB 18;  Length 37;
  Best Local Similarity   83.3%;  Pred. No. 4.4e-15;
  Matches   30;  Conservative    5;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 VEKNITVTASVDPTIDLLQADGSALPSAVALTYSPA 36
           ||| |:|||||||:||||:||||||::||||||||
Db       1 VEKTISVTASVDPTVDLLQSDGSALPNSVALTYSPA 36


RESULT 16
AAW17906
ID   AAW17906 standard; peptide; 37 AA.
XX
AC   AAW17906;
XX
DT   25-JUL-1997  (first entry)
XX
DE   Peptide CS1 from denatured protein subunits of E.coli fimbriae.
XX
KW   Immunisation; fimbrial protein; colonisation factor antigen;
KW   antibody.
XX
OS   Escherichia coli.
OS   Synthetic.
XX
PN   WO9638171-A1.
XX
PD   05-DEC-1996.
XX
PF   03-JUN-1996;   96WO-US08730.
XX
PR   02-JUN-1995;   95US-0460617.
XX
PA   (USSA ) US DEPT OF THE ARMY.
XX
PI   Anderson J,  Carter JM,  Cassels F;
XX
DR   WPI; 1997-034101/03.
XX
PT   New consensus peptide from fimbrial proteins of the E. coli family
PT   CS4-CFA/I   and denatured fimbrial proteins, used for immunisation
PT   against infection by bacteria of this family
XX
PS   Disclosure; Page 4; 17pp; English.
XX
CC   The present sequence is a peptide from the denatured protein subunit
CC   of fimbriae from CS1. Many of the denatured proteins give rise to
CC   antibodies that are reactive with proteins of other strains as shown
CC   by precipitation studies on nitrocellulose. They are also reactive
CC   with surface antigens of the fimbriae as shown by agglutination
CC   of organisms. They can be used to immunise against disease caused by
CC   enterotoxic E. coli of the family CS4-CFA/I. Also antibodies raised
CC   against the E. coli CS4-CFA/I family can be used as diagnostic reagents
CC   to identify antigens.
XX
SQ   Sequence   37 AA;

  Query Match             88.4%;  Score 153;  DB 18;  Length 37;
  Best Local Similarity   83.3%;  Pred. No. 4.4e-15;
  Matches   30;  Conservative    5;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 VEKNITVTASVDPTIDLLQADGSALPSAVALTYSPA 36
           ||| |:|||||||:||||:||||||::||||||||
Db       1 VEKTISVTASVDPTVDLLQSDGSALPNSVALTYSPA 36


RESULT 17
AAW17912
ID   AAW17912 standard; peptide; 148 AA.
XX
AC   AAW17912;
XX
DT   25-JUL-1997  (first entry)
XX
DE   Peptide CS1 from denatured protein subunits of E.coli fimbriae.
XX
KW   Immunisation; fimbrial protein; colonisation factor antigen;
KW   antibody.
XX
OS   Escherichia coli.
OS   Synthetic.
XX
PN   WO9638171-A1.
XX
PD   05-DEC-1996.
XX
PF   03-JUN-1996;   96WO-US08730.
XX
PR   02-JUN-1995;   95US-0460617.
XX
PA   (USSA ) US DEPT OF THE ARMY.
XX
PI   Anderson J,  Carter JM,  Cassels F;
XX
DR   WPI; 1997-034101/03.
XX
PT   New consensus peptide from fimbrial proteins of the E. coli family
PT   CS4-CFA/I - and denatured fimbrial proteins, used for immunisation
PT   against infection by bacteria of this family
XX
PS   Disclosure; Page 4; 17pp; English.
XX
CC   The present sequence is a peptide from the denatured protein subunit
CC   of fimbriae from CS1. Many of the denatured proteins give rise to
CC   antibodies that are reactive with proteins of other strains as shown
CC   by precipitation studies on nitrocellulose. They are also reactive
CC   with surface antigens of the fimbriae as shown by agglutination
CC   of organisms. They can be used to immunise against disease caused by
CC   enterotoxic E. coli of the family CS4-CFA/I. Also antibodies raised
CC   against the E. coli CS4-CFA/I family can be used as diagnostic reagents
CC   to identify antigens.
XX
SQ   Sequence   148 AA;

  Query Match             88.4%;  Score 153;  DB 18;  Length 148;
  Best Local Similarity   83.3%;  Pred. No. 2.5e-14;
  Matches   30;  Conservative    5;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 VEKNITVTASVDPTIDLLQADGSALPSAVALTYSPA 36
           ||| |:|||||||:||||:||||||::||||||||
Db       1 VEKTISVTASVDPTVDLLQSDGSALPNSVALTYSPA 36


RESULT 18
AAR21313
ID   AAR21313 standard; Protein; 171 AA.
XX
AC   AAR21313;
XX
DT   17-MAY-1992  (first entry)
XX
DE   Sequence of a major CS1 pilin antigen of enterotoxigenic
DE   Escherichia coli encoded by coo A gene.
XX
KW   Antigen; vaccine; diarrhoea; probe.
XX
OS   Escherichia coli LMC10.
XX
FH   Key             Location/Qualifiers
```

```
FT   Peptide          1..23
FT                    /label= signal
XX
PN   WO9201703-A.
XX
PD   06-FEB-1992.
XX
PF   23-JUL-1991;   91WO-US05217.
XX
PR   24-JUL-1990;   90US-0557535.
XX
PA   (UYEM-) EMORY UNIV.
XX
PI   Scott JR,  Perezcasal J;
XX
DR   WPI; 1992-064882/08.
DR   N-PSDB; AAQ20529.
XX
PT   Major CSI pilin antigen of enterotoxigenic Escherichia coli -
PT   with probes binding to DNA encoding the antigen, useful in
PT   diagnosis of enterotoxigenic E.coli and as vaccine
XX
PS   Example; Fig 2; 31pp; English.
XX
CC   The inventors claim a DNA sequence (AAQ20529), a vector, transformed
CC   microbe, process, a probe, a vaccine and the major CS1 pilin antigen
CC   itself.  The vector is selected from the recombinant plasmids pEU600,
CC   pEU605 and pEU452.  The host cell is E. coli K12 strain JM83.  The
CC   probe comprises the 318 bp internal HhaI digestion prod. of AAQ20529.
XX
SQ   Sequence   171 AA;

  Query Match             88.4%;  Score 153;  DB 13;  Length 171;
  Best Local Similarity   83.3%;  Pred. No. 3e-14;
  Matches   30;  Conservative    5;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 VEKNITVTASVDPTIDLLQADGSALPSAVALTYSPA 36
           ||| |:||||||||:||||:||||||::||||||||
Db      24 VEKTISVTASVDPTVDLLQSDGSALPNSVALTYSPA 59


RESULT 19
AAW17915
ID   AAW17915 standard; peptide; 51 AA.
XX
AC   AAW17915;
XX
DT   25-JUL-1997  (first entry)
XX
DE   Peptide PCF0166 from denatured protein subunits of E.coli fimbriae.
XX
KW   Immunisation; fimbrial protein; colonisation factor antigen;
KW   antibody.
XX
OS   Escherichia coli.
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 47
FT                    /label= Not_defined
XX
PN   WO9638171-A1.
XX
PD   05-DEC-1996.
XX
PF   03-JUN-1996;   96WO-US08730.
XX
PR   02-JUN-1995;   95US-0460617.
XX
PA   (USSA ) US DEPT OF THE ARMY.
XX
PI   Anderson J,  Carter JM,  Cassels F;
XX
DR   WPI; 1997-034101/03.
XX
PT   New consensus peptide from fimbrial proteins of the E. coli family
PT   CS4-CFA/I - and denatured fimbrial proteins, used for immunisation
PT   against infection by bacteria of this family
XX
PS   Disclosure; Page 4; 17pp; English.
XX
CC   The present sequence is a peptide from the denatured protein subunit
CC   of fimbriae from PCF0166. Many of the denatured proteins give rise to
CC   antibodies that are reactive with proteins of other strains as shown
CC   by precipitation studies on nitrocellulose. They are also reactive
CC   with surface antigens of the fimbriae as shown by agglutination
CC   of organisms. They can be used to immunise against disease caused by
CC   enterotoxic E. coli of the family CS4-CFA/I. Also antibodies raised
CC   against the E. coli CS4-CFA/I family can be used as diagnostic reagents
CC   to identify antigens.
XX
SQ   Sequence   51 AA;

  Query Match             85.0%;  Score 147;  DB 18;  Length 51;
  Best Local Similarity   85.7%;  Pred. No. 4.9e-14;
  Matches   30;  Conservative    3;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 VEKNITVTASVDPTIDLLQADGSALPSAVALTYSP 35
           |||||||||||||||||:|||:|||||:|| ||| |
Db       1 VEKNITVTASVDPTIDILQANGSALPTAVDLTYLP 35


RESULT 20
AAW17916
ID   AAW17916 standard; peptide; 40 AA.
XX
AC   AAW17916;
XX
DT   25-JUL-1997  (first entry)
XX
DE   Peptide CS2 from denatured protein subunits of E.coli fimbriae.
XX
KW   Immunisation; fimbrial protein; colonisation factor antigen;
KW   antibody.
XX
OS   Escherichia coli.
OS   Synthetic.
XX
PN   WO9638171-A1.
XX
PD   05-DEC-1996.
XX
PF   03-JUN-1996;   96WO-US08730.
XX
PR   02-JUN-1995;   95US-0460617.
XX
PA   (USSA ) US DEPT OF THE ARMY.
XX
PI   Anderson J,  Carter JM,  Cassels F;
XX
DR   WPI; 1997-034101/03.
XX
PT   New consensus peptide from fimbrial proteins of the E. coli family
PT   CS4-CFA/I - and denatured fimbrial proteins, used for immunisation
PT   against infection by bacteria of this family
XX
PS   Disclosure; Page 4; 17pp; English.
XX
CC   The present sequence is a peptide from the denatured protein subunit
CC   of fimbriae from CS2. Many of the denatured proteins give rise to
CC   antibodies that are reactive with proteins of other strains as shown
CC   by precipitation studies on nitrocellulose. They are also reactive
CC   with surface antigens of the fimbriae as shown by agglutination
CC   of organisms. They can be used to immunise against disease caused by
CC   enterotoxic E. coli of the family CS4-CFA/I. Also antibodies raised
CC   against the E. coli CS4-CFA/I family can be used as diagnostic reagents
```

```
CC   to identify antigens.
XX
SQ   Sequence   40 AA;

  Query Match             79.8%;  Score 138;  DB 18;  Length 40;
  Best Local Similarity   79.4%;  Pred. No. 7.5e-13;
  Matches   27;  Conservative    4;  Mismatches    3;  Indels    0;  Gaps    0;

Qy       2 EKNITVTASVDPTIDLLQADGSALPSAVALTYSP 35
           |||||||||||||||:|:|||:|||||| : | |
Db       2 EKNITVTASVDPTIDLMQSDGTALPSAVNIAYLP 35


RESULT 21
AAY22324
ID   AAY22324 standard; Protein; 170 AA.
XX
AC   AAY22324;
XX
DT   22-SEP 1999  (first entry)
XX
DE   Pilin protein CotA.
XX
KW   CS2 gene cluster; CotA; CotB; CotC; CotD; pilin protein; immunogen;
KW   enterotoxigenic E. coli; human upper intestine; diarrhoeal disease;
KW   enteric infection; therapy.
XX
OS   Escherichia coli.
XX
PN   US5932715-A.
XX
PD   03 AUG 1999.
XX
PF   07-JUN 1995;   95US-0483101.
XX
PR   07 JUN-1995;   95US-0483101.
XX
PA   (UYEM-) UNIV EMORY.
XX
PI   Caron J,  Froehlich B,  Scott JR;
XX
DR   WPI; 1999-443623/37.
DR   N-PSDB; AAX84848.
XX
PT   Isolated nucleic acids encoding Escherichia coli CS2 pilin proteins
PT   useful for vaccinating against diarrhoeal diseases caused by
PT   Escherichia coli
XX
PS   Claim 1; Column 39-40; 35pp; English.
XX
CC   This sequence represents a CS2 pilin protein of the invention, encoded by
CC   (which also encodes CotB, CotC, and CotD). CS2 pilins are long
CC   proteinaceous molecules thought to mediate attachment of enterotoxigenic
CC   E. coli (ETEC) to and/or promote colonisation of the human upper
CC   intestine. The CS2 gene cluster may be used to produce immunogens for
CC   vaccinating patients against diarrhoeal diseases caused by ETEC bacteria.
CC   This type of enteric infection is a major cause of death among infants in
CC   developing countries and in immunocompromised (e.g. Acquired Immune
CC   Deficiency Syndrome (AIDS)) or elderly adults. The vaccine comprises more
CC   than 1 antigenic determinant (epitopes) from more than 1 pilus type to be
CC   effective against more than 1 type of ETEC infection.
XX
SQ   Sequence   170 AA;

  Query Match             79.8%;  Score 138;  DB 20;  Length 170;
  Best Local Similarity   79.4%;  Pred. No. 4.5e-12;
  Matches   27;  Conservative    4;  Mismatches    3;  Indels    0;  Gaps    0;

Qy       2 EKNITVTASVDPTIDLLQADGSALPSAVALTYSP 35
           ||.|||||||||||||:|:||:|||||| : | |
Db      25 EKNITVTASVDPTIDLMQSDGTALPSAVNIAYLP 58
```

```
RESULT 22
AAW17908
ID   AAW17908 standard; peptide; 36 AA.
XX
AC   AAW17908;
XX
DT   25-JUL-1997  (first entry)
XX
DE   Peptide CS17 from denatured protein subunits of E.coli fimbriae.
XX
KW   Immunisation; fimbrial protein; colonisation factor antigen;
KW   antibody.
XX
OS   Escherichia coli.
OS   Synthetic.
XX
PN   WO9638171-A1.
XX
PD   05-DEC-1996.
XX
PF   03-JUN-1996;   96WO-US08730.
XX
PR   02-JUN-1995;   95US-0460617.
XX
PA   (USSA ) US DEPT OF THE ARMY.
XX
PI   Anderson J,  Carter JM,  Cassels F;
XX
DR   WPI; 1997-034101/03.
XX
PT   New consensus peptide from fimbrial proteins of the E. coli family
PT   CS4-CFA/I - and denatured fimbrial proteins, used for immunisation
PT   against infection by bacteria of this family
XX
PS   Disclosure; Page 4; 17pp; English.
XX
CC   The present sequence is a peptide from the denatured protein subunit
CC   of fimbriae from CS17. Many of the denatured proteins give rise to
CC   antibodies that are reactive with proteins of other strains as shown
CC   by precipitation studies on nitrocellulose. They are also reactive
CC   with surface antigens of the fimbriae as shown by agglutination
CC   of organisms. They can be used to immunise against disease caused by
CC   enterotoxic E. coli of the family CS4-CFA/I. Also antibodies raised
CC   against the E. coli CS4-CFA/I family can be used as diagnostic reagents
CC   to identify antigens.
XX
SQ   Sequence   36 AA;

  Query Match             78.6%;  Score 136;  DB 18;  Length 36;
  Best Local Similarity   75.0%;  Pred. No. 1.3e-12;
  Matches   27;  Conservative    5;  Mismatches    4;  Indels    0;  Gaps    0;

Qy       1 VEKNITVTASVDPTIDLLQADGSALPSAVALTYSPA 36
           ||||||| ||||| :|||||||::|| ::|||||  |
Db       1 VEKNITVRASVDPKLDLLQADGTSLPDSIALTYSVA 36


RESULT 23
AAW17914
ID   AAW17914 standard; peptide; 40 AA.
XX
AC   AAW17914;
XX
DT   25-JUL-1997  (first entry)
XX
DE   Peptide CS17 from denatured protein subunits of E.coli fimbriae.
XX
KW   Immunisation; fimbrial protein; colonisation factor antigen;
KW   antibody.
XX
OS   Escherichia coli.
OS   Synthetic.
XX
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FH   Key             Location/Qualifiers
FT   Misc-difference 35
FT                   /label= Not_defined
FT   Misc-difference 37
FT                   /label= Not_defined
FT   Misc-difference 38
FT                   /label= N0t_defined
FT   Misc-difference 39
FT                   /label= Not_defined
XX
PN   WO9638171-A1.
XX
PD   05-DEC-1996.
XX
PF   03-JUN-1996;   96WO-US08730.
XX
PR   02-JUN-1995;   95US-0460617.
XX
PA   (USSA ) US DEPT OF THE ARMY.
XX
PI   Anderson J,  Carter JM,  Cassels F;
XX
DR   WPI; 1997-034101/03.
XX
PT   New consensus peptide from fimbrial proteins of the E. coli family
PT   CS4-CFA/I - and denatured fimbrial proteins, used for immunisation
PT   against infection by bacteria of this family
XX
PS   Disclosure; Page 4; 17pp; English.
XX
CC   The present sequence is a peptide from the denatured protein subunit
CC   of fimbriae from CS17. Many of the denatured proteins give rise to
CC   antibodies that are reactive with proteins of other strains as shown
CC   by precipitation studies on nitrocellulose. They are also reactive
CC   with surface antigens of the fimbriae as shown by agglutination
CC   of organisms. They can be used to immunise against disease caused by
CC   enterotoxic E. coli of the family CS4-CFA/I. Also antibodies raised
CC   against the E. coli CS4-CFA/I family can be used as diagnostic reagents
CC   to identify antigens.
XX
SQ   Sequence   40 AA;

  Query Match             78.6%;  Score 136;  DB 18;  Length 40;
  Best Local Similarity   75.0%;  Pred. No. 1.5e-12;
  Matches   27;  Conservative    5;  Mismatches    4;  Indels    0;  Gaps    0;

Qy       1 VEKNITVTASVDPTIDLLQADGSALPSAVALTYSPA 36
           ||||||| ||||| :|||||||::|| ::|||||  |
Db       1 VEKNITVRASVDPKLDLLQADGTSLPDSIALTYSXA 36


RESULT 24
AAW24224
ID   AAW24224 standard; peptide; 36 AA.
XX
AC   AAW24224;
XX
DT   17-MAR-1998  (first entry)
XX
DE   Peptide fragment from Escherichia coli CS17.
XX
KW   T-lymphocyte epitope; diagnosis; antigen; infectious disease;
KW   delayed-type hypersensitivity assay; vaccine development.
XX
OS   Escherichia coli.
XX
PN   WO9727462-A2.
XX
PD   31-JUL-1997.
XX
PF   27-JAN-1997;   97WO-US01084.
XX
PR   26-JAN-1996;   96US-0010679.
XX
PA   (USSA ) US DEPT ARMY GOVERNMENT US ARMY MEDICAL.
XX
PI   Brix DL,  Sitz KV;
XX
DR   WPI; 1997-393814/36.
XX
PT   Peptide fragments containing antigen epitope(s) used to trace
PT   diseases - used in a delayed-type hypersensitivity assay, for in
PT   vivo mapping of human T-lymphocyte epitope(s) e.g. for diagnosis,
PT   vaccine development etc
XX
PS   Disclosure; Page 10; 14pp; English.
XX
CC   Peptides AAW24221-6 from Escherichia coli may be used in the method
CC   of the invention which relates to the tracing of sources of infectious
CC   diseases. The method comprises preparing a short (9-50 amino acid)
CC   peptide containing at least one non-conserved epitope of an organism,
CC   injecting a composition containing the peptide intradermally into a test
CC   subject in a delayed-type hypersensitivity (DTH) assay and observing the
CC   injection site at intervals for induration. The method allows the
CC   T-lymphocyte epitopes of a large antigen to be determined in vivo in
CC   humans. The method is useful in medicine e.g. in diagnosis, monitoring
CC   and treatment design for infectious disease exposure, active autoimmune
CC   disease, allergic diseases and malignancy. It is especially useful for
CC   tracing infectious diseases e.g HIV, particularly when a sequence is
CC   present only in certain strains of an organism, and developing suitable
CC   vaccines. Vaccinated individuals can also be tested to verify protection
CC   against a particular strain. The method allows in vivo mapping of
CC   T-lymphocyte epitopes, not previously possible. The method is simpler,
CC   more rapid and more sensitive. It can also be applied in a variety of
CC   environments e.g. undeveloped regions since specialist equipment is not
CC   required.
XX
SQ   Sequence   36 AA;

  Query Match             75.1%;  Score 130;  DB 18;  Length 36;
  Best Local Similarity   75.0%;  Pred. No. 9.6e-12;
  Matches   27;  Conservative    4;  Mismatches    5;  Indels    0;  Gaps    0;

Qy       1 VEKNITVTASVDPTIDLLQADGSALPSAVALTYSPA 36
           ||||||| |||| ||||||||::|| ::|||||  |
Db       1 VEKNITVRASVDKLIDLLQADGTSLPDSIALTYSVA 36


RESULT 25
AAB45917
ID   AAB45917 standard; Protein; 191 AA.
XX
AC   AAB45917;
XX
DT   23-MAR-2001  (first entry)
XX
DE   S. enterica serovar Typhi tcfB fimbrial subunit protein.
XX
KW   Fimbrial protein; saf; tcf; vaccine; gene therapy; immunization;
KW   tcf insert; detection.
XX
OS   Salmonella typhi.
XX
PN   WO200073336-A1.
XX
PD   07-DEC-2000.
XX
PF   26-MAY-2000; 2000WO-SE01079.
XX
PR   28-MAY-1999;   99SE-0001961.
XX
PA   (ACTI-) ACTIVE BIOTECH AB.
XX
PI   Folkesson A,  Normark S,  Loefdahl S;
XX
DR   WPI; 2001-061512/07.
```

DR N-PSDB; AAC82926.
XX
PT Fimbriae proteins of Salmonella enterica subspecies I bacteria, useful
PT for producing vaccines against the bacterial subspecies and for
PT detecting the bacteria -
XX
PS Disclosure; Page 68-69; 77pp; English.
XX
CC This invention describes the novel proteins (saf and tcf) (I) encoded by
CC a DNA sequence of a gene encoding the precursor of the saf fimbriae unit
CC of Salmonella enterica subspecies 1 or a DNA sequence of the gene
CC encoding the tcf fimbriae unit of S. enterica subspecies I serovar Typhi
CC The products of the invention can be used as vaccines or for gene
CC therapy. Such vaccines are useful for protection against diseases caused
CC by S. enterica subspecies I or S. enterica subspecies I serovar Typhi.
CC The saf and tcf proteins from S. enterica subspecies I bacteria are
CC useful for active or passive immunization in mammals. The nucleotide
CC sequences are useful for constructing vectors for use as vaccines for
CC insertion into attenuated bacteria in constructing a recombinant viral
CC vaccine, or for direct inoculation of a nucleic acid vaccine. The protein
CC or antigenic fragments, nucleic acid sequences, and antibodies are useful
CC in molecular diagnostic assays for the detection of S. enterica
CC subspecies I.
XX
SQ Sequence 191 AA;

Query Match 65.3%; Score 113; DB 22; Length 191;
Best Local Similarity 60.0%; Pred. No. 2.3e-08;
Matches 21; Conservative 9; Mismatches 5; Indels 0; Gaps 0;

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Qy       1 VEKNITVTASVDPTIDLLQADGSALPSAVALTYSP 35
           |:|:|:|||::| |::|||||||:||| : | : |
Db      44 VQKDITVTANIDSTLELLQADGSSLPSTMKLDPMP 78
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